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EDITORIAL

This special issue covers topics that were presented at the International Conference on Food and Drug Safety Assessment on April 15–16, 2011, sponsored by Kaohsiung Medical University, Taiwan and the National Center for Toxicological Research, Food and Drug Administration, USA. Subsequent to the much-publicized episode of plasticizer contamination in food and drug preparations, the safety of food and drugs has becoming increasingly important to the general public. Therefore, review articles on the toxic effects of plasticizers on human health are also included.

The current issue comes at the right time to address new tools and opportunities that could be used to increase our understanding of the cellular, molecular, and genetic mechanisms by which environmental exposure exerts its effects. The actions of toxic substances, including the misconception of zero tolerance in food and drug safety, could be better understood. The globalization of food and medical products may create shifts in regulatory compliance so that could fill the gaps in food and medical product safety.

This issue begins with Patel and Miller [1] discussing how regulatory science plays a vital role in protecting and promoting global public health by providing the scientific basis that ensures that food and medical products are safe. The article by Li et al. [2] reviews the major food safety episodes that occurred in Taiwan during the past decade and discusses the necessity of establishing a well-coordinated, harmonized system for domestic and international collaboration on standards and regulations. Li and Ko [3] then give a succinct account of the recent plasticizer incident that happened in May 2011 and its health impacts in Taiwan. Next, two articles by Wang et al. [4] and Tsai et al. [5] suggest the possible tumorigenic mechanisms of phthalates and their associations with phthalate exposure and asthma. Based on epidemiological data on human exposure to phthalates, animal carcinogenicity data, genotoxicity, and cellular mechanisms, Wang et al. [4] hypothesize that the aryl hydrocarbon receptor (AhR) and its downstream signaling cascade promote phthalate-induced tumorigenesis. Tsai et al. [5] review epidemiological evidence on the relationship between phthalate exposure and asthma, as well as allergic diseases, and the adjuvant effects of phthalates on the immune response and airway remodeling. Both reviews urge the importance of conducting further extensive studies on this emerging public health concern.

This issue of the *Kaohsiung Journal of Medical Sciences* broadly covers environmental concerns regarding endocrine-disrupting chemicals (EDCs) and dioxin in the environment. The articles by Kuo et al. [6] and Sun et al. [7] review the effects of EDCs on immunomodulation and allergic responses, respectively. Kuo et al. [6] describe the effects of EDCs on the immune system (e.g., the synthesis of cytokines, immunoglobulins, and inflammatory mediators and the activation and survival of immune cells). The evidence indicates that the dysfunction of the immune system caused by EDCs may lead to the attenuation of immunity against infection or the hyperreactivity of immune responses. The article by Sun et al. [7] focuses on the effects of two alkylphenolic EDCs (4-nonylphenol and 4-octylphenol) on several key cell types involved in allergic inflammation. The review by Yoshimura [8] details issues with Yusho disease that have manifested over the last 43 years, including the accumulation of dioxin and the intake level of dioxin via food in Japan. The launch of a project that will be undertaken by the Japanese government regarding the environment and children is also introduced.

The closing article by Lin et al. [9] raises caution about the emerging potential threat of toxicity due to nanotechnology-related products. The article examines the safety of quantum dot 705 in the kidneys, indicating that renal mitochondria appear to be the target of QD 705 toxicity. The safety of nanoparticles in various products deserves careful and systematic assessment regarding their different characteristics in pharmacological and pharmacokinetic profiles, as is conducted for conventionally prepared products. The safety of nanotechnology-manufactured products should be carefully evaluated.

References

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